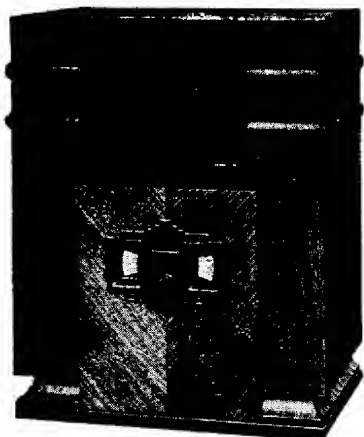


A. J. BALCOMBE'S "ALBA" SUPERHET FIVE FOR A.C. MAINS



A point to remember when testing the Alba Superhet Five is that the coating on the chassis is an excellent insulator. Care has to be taken therefore to obtain a good connection with the test prods.

Circuit.—The combined detector oscillator SP4 clear (V1) is preceded by a single tuned aerial circuit which incorporates a special I.F. trap and a parallel trap across the long-wave coil to prevent break-through of London National. Reaction is employed in the cathode circuit by coupling with the osc. coil, which is in series with I.F.T.I.

The intermediate-frequency valve, VP4 Met. (V2) has an I.F. transformer, with tuned

secondary, and a small amount of predetermined reaction is obtained between the second detector anode through a small trimming condenser.

A screen grid second detector, S4VB (V3) works as an anode bend detector, and has the pick-up fed to the grid through the secondary of the second I.F. transformer. It should be noted that the screen of this valve is fed through a voltage dropping resistance of 2 megohms, and not from a potentiometer. The anode circuit is adequately decoupled and straight resistance coupling is used to the next valve.

The output pentode, PM24M (V4) has a grid stopper, R11, and is tone compensated by C11 between the anode and earth. Bias is obtained from a potentiometer in the common negative lead, and the grid circuit is properly decoupled.

Full wave rectification with a DW3 is followed by the speaker field in the negative H.T. lead, with two electrolytic condensers for smoothing.

Alternative Valves.—An AC/SG may be used for V1, and the rectifier may be a DW3 or a IW3.

Special Notes.—The coating on the metal chassis is an excellent insulator, and in taking voltage readings the negative prod or clip must be scraped into the metal or contact made with the heads of one of the many

bolts. The lay-out of the valves is straightforward in the order in which we have given them, beginning from the left (looking from back).

Pilot Lamps.—These are across only half of the set filament winding, and are 2.5 v. .2 amp. types. The small black knob at the back adjusts the I.F. reaction condenser. This assists the sensitivity of the set considerably, though the control is not sharp in action.

Quick Tests.—The terminals on the output transformer are shrouded, and the only convenient tests are the voltages on the valve anodes. (See table.)

Removing the Chassis.—Remove control knobs (grub screws). Remove one wood screw from underneath and two from side of platform, on which chassis stands. Undo four nuts holding speaker to baffle and slide the chassis out on its platform.

Remove platform by undoing four holding screws.

General Notes.—The dry electrolytic smoothing condensers are held to the chassis by a clamp with two bolts at one side. Except C8 and C10, which are in one container in the middle of the chassis, all the components are suspended in the wiring near their relative valves or coils.

(Continued on next page.)

VALVE READINGS

(V.C. at maximum)

| Valve | Type | Purpose | Electrode | Volts | M.A. |
|--------|-----------|----------------|-----------|------------------|------|
| V 1... | SP4 plain | 1st det. osc. | anode | 250 | 1.1 |
| | | | screen | 65 | |
| V 2... | VP4 Met. | I.F. ... | anode | 250 | 2.5 |
| | | | screen | 65 | |
| V 3... | S4VBMet. | 2nd det. | anode | 80-90 | .2 |
| | | | screen* | | |
| V 4... | P.M.24M. | Pentode output | anode | 240 | 32 |
| | | | aux. grid | 255 | 6 |
| | DW3 | Rectifier | anodes | A.C. each 340 v. | — |

* There is a 2 megohm resistance in the H.T. lead to this electrode and an entirely erroneous reading will be obtained even with the best moving coil meter.

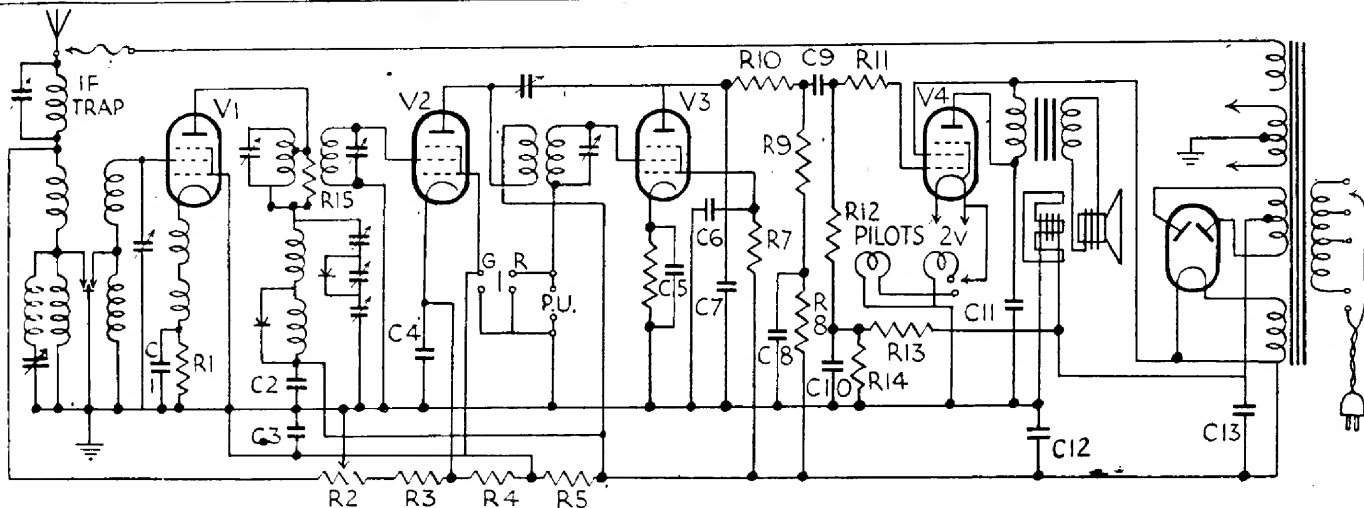
CONDENSERS

| C. | Purpose | Mfd. |
|----|---|--------|
| 1 | V1 cathode bias | .0025* |
| 2 | Low A.C. potential end of osc. coil | .1 |
| 3 | V1 and V2 screens | .05 |
| 4 | V2 cathode | .01 |
| 5 | V3 cathode (electrolytic) | .25 |
| 6 | V3 screen | .05 |
| 7 | V3 anode by-pass | .0005 |
| 8 | V3 anode decoupling | .5 |
| 9 | L.F. coupling, V3 to V4 | .001 |
| 10 | V4 grid decoupling | .5 |
| 11 | Pentode anode compensator | .001 |
| 12 | H.T. smoothing, electrolytic (in block) | 6 |
| 13 | H.T. smoothing, electrolytic (in block) | 4 |

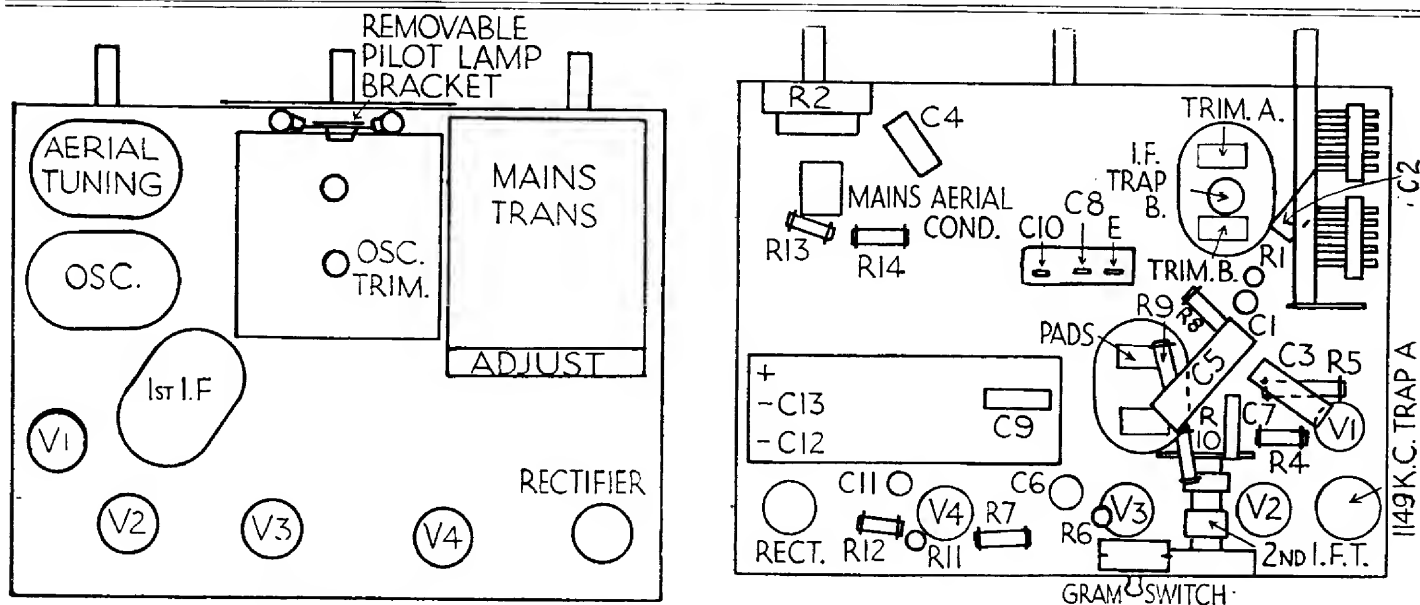
*In our model this was .001 mfd.

RESISTANCES

| R. | Purpose | Ohms. |
|----|-----------------------------------|----------|
| 1 | V1 cathode bias | 7,000 |
| 2 | Var. volume-control | 15,000 |
| 3 | Part of bias ptr. of V2 | 280 |
| 4 | Part of screen ptr. V1 and V2 | 30,000 |
| 5 | Part of screen ptr. V1 and V2 | 50,000 |
| 6 | V3 cathode bias | 5,000 |
| 7 | Voltage dropping to screen V3 | 2 meg. |
| 8 | V3 anode decoupling | 50,000 |
| 9 | V3 anode coupling to V4 | 250,000 |
| 10 | H.F. stopper, anode V3 | 50,000 |
| 11 | H.F. stopper, grid V4 | 250,000 |
| 12 | V4 grid leak | .5 meg. |
| 13 | Bias ptr. for V4... | 2 meg. |
| 14 | Bias ptr. for V4... | .25 meg. |
| 15 | Across part of primary 1st I.F.T. | 50,000 |
| — | Field coil | 2,500 |
| — | Primary of output transformer... | 475 |



Two special traps, one in series with the first coil and one in parallel with the long-wave section are an unusual feature of the Alba Superhet Five. The first is a rejector trap tuned to the I.F. frequency and the second is an absorption type designed to prevent break-through by the London National transmitter.



Here are the top (left) and bottom (right) views of the chassis of A.J. Balcombe's Superhet Five. It will be noted that all the valves are very easily got at while the twin pilot lamps are also particularly accessible.

(Continued from previous page.)

Switch contacts are easily cleaned by turning switch to L.W. position, and wiping with a duster. Connections to the mains transformer are:—From bobbin, two thick leads from outsides, to set filaments; two thin

leads to rectifier filaments. The thick one in the middle is the centre tap of the set filament winding.

On the terminal strip the terminals are labelled.

Replacing the Chassis.—Replace platform on chassis (grooved sides of holes out-

wards), and slide platform into cabinet. The L.S. leads are sufficiently long to allow the speaker to lie outside while doing this.

Replace speaker and two wood screws holding platform to bottom of cabinet.

Replace the wood screw underneath, and fix the control knobs.